

**Translation**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>41 516.mey.sev</b>		<b>FOR FURTHER ACTION</b>	See Form PCT/IPEA/416
International application No. <b>PCT/EP2004/000282</b>	International filing date (day/month/year) <b>16.01.2004</b>	Priority date (day/month/year) <b>22.01.2003</b>	
International Patent Classification (IPC) or national classification and IPC <b>B21B 1/46</b>			
Applicant <b>SMS DEMAG AKTIENGSELLSCHAFT</b>			

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a. ☒ (sent to the applicant and to the International Bureau) a total of 2 sheets, as follows:

☒ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

<input checked="" type="checkbox"/>	Box No. I	Basis of the report
<input type="checkbox"/>	Box No. II	Priority
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/>	Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/>	Box No. VI	Certain documents cited
<input type="checkbox"/>	Box No. VII	Certain defects in the international application
<input type="checkbox"/>	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/000282

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-10 \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* 1-4 \_\_\_\_\_ received by this Authority on 10.11.2004 with the letter of 08.11.2004
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the drawings:
- sheets 1/4 - 4/4 \_\_\_\_\_ as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☒ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☒ the claims, nos. 5-15 \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/000282

**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	1 - 4	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1 - 4	NO
Industrial applicability (IA)	Claims	1 - 4	YES
	Claims		NO

## 2. Citations and explanations (Rule 70.7)

1. The application fails to meet the requirements of PCT Article 6 because claim 1 is not clear.
2. Irrespective of the aforementioned lack of clarity, the subject matter of claims 1 to 4 does not involve an inventive step (PCT Article 33(3)), and consequently the requirements of PCT Article 33(1) are not met.
3. The phrases "high energy input" and "slight thickness reduction" in claim 1 are vague and unclear, and leave the reader in doubt as to the scope of the technical features referred to. The claimed subject matter is therefore not clearly defined (PCT Article 6). The applicant cannot rely on an unclear term to distinguish the claimed invention from the prior art (see PCT Guidelines, §5.34).
4. The phrase "is carried out with a thickness reduction of, for example, a maximum of 7 mm for a cast strand thickness of 50 mm" in claim 1 does not have any limiting effect on the scope of the claim. Any feature following such an expression is regarded as entirely optional (see PCT Guidelines, §5.40).
5. In lines 17 to 26 of claim 1 the applicant attempts to define the subject matter of the claim by reference to the

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Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

result which is to be achieved, but in doing so merely states the problem which is to be solved, as specified in lines 12 to 14 of the claim. Again, the applicant cannot rely on an unclear term to distinguish the claimed invention from the prior art.

6. In view of the above, claim 1 is interpreted as follows:

Process for producing slabs in a continuous casting machine (10) comprising an oscillating casting mould (11), below which is a cast strand guide arrangement (20, 22, 23); wherein the cast strand (G) is bent from the vertical casting direction into the horizontal rolling direction and is supported and advanced by pairs of opposed pinch rolls (21, 24) that are pressed against each other with a defined screw-down force and can be grouped in segments; wherein within the continuous casting machine (10) in the area of the aligning pinch rolls (24) the cast strand (12) undergoes forming by at least one reducing roll stand (30) to produce a reduced cast strand (12') with a thickness less than that of the original cast strand, after which the continuous reduced cast strand (12') is cut into slabs (12'') which are transferred to a soaking furnace (40) and then to a roll system (21); characterised in that the forming of the cast strand (12) into the reduced cast strand (12') takes place shortly after full solidification at a surface temperature around 1000°C.

7. Reference is made to the following documents:

- D1: WO 00/10741 A (DJUMLIJA GERLINDE; FLICK ANDREAS (AT); JOB CLIFFORD (AT); LETTMAYR GE), 2 March 2000 (2000-03-02)
- D2: EP-A-0 326 190 (THYSSEN STAHL AG), 2 August 1989 (1989-08-02)

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8. Document D2 states that "a degree of deformation [of the cast strand] of around 5% can be enough to improve the surface quality (dressing)" (see column 3, lines 5 to 8). In other words, it is known that a slight reduction in thickness will improve the surface quality of a cast strand.
9. According to D2, the thickness of the cast strand is only reduced after cooling of the surface temperature to between about 1000 and 1200°C (see column 3, lines 14 to 22).
10. It is also clear from D2 that the cast strand is fully solidified after cooling.
11. The process step specified in the characterising part of claim 1 is thus already known, since according to D2 "the forming of the cast strand into the reduced cast strand takes place shortly after full solidification at a surface temperature around 1000°C".
12. Claim 1 thus claims only the use of a known process in a device as disclosed in D1 (see page 12, last paragraph to page 14, first paragraph; page 14, third paragraph; and figure 2).
13. The device of D1 can also produce a degree of deformation of 10% at a roll temperature or surface temperature of 1200°C (see page 13, third paragraph).
14. It is therefore obvious to a person skilled in the art that the process disclosed in D2 can be used with the device known from D1.
15. The applicant's attention is drawn to the following points:

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1. The application does not indicate that there is any advantage in having a surface temperature around 1000°C instead of 1200°C.
  2. A thickness reduction of "7 mm with a cast strand thickness of 50 mm" is a thickness reduction of 14%.
16. Dependent claims 2 to 4 do not contain any features that meet the PCT requirements in respect of inventive step when combined with the features of any of the back-referenced claims. Dependent claims 2 to 4 relate only to minor modifications to the process of claim 1, of the kind that a person skilled in the art would routinely make on the basis of familiar considerations, especially since the resulting advantages are readily predictable. The subject matter of claims 2 to 4 therefore does not involve an inventive step.